



**NEWSLETTER OF THE LONDON CHAPTER,  
ONTARIO ARCHAEOLOGICAL SOCIETY**

55 Centre St., London, Ontario N6J 1T4  
(519) 675-7742; Fax: 675-7777



September and October 2002

02-5, 02-6

Finally some rain to weather all those dry, dusty fields!

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The October meeting of the London Chapter of the OAS features a PhD candidate at McMaster University who is a specialist in Arctic archaeology. Brooke Milne will be speaking on: "Examining Stone Tool Variability in Pre-Dorset Inland and Coastal Sites on Southern Baffin Island." Come and join us Thursday October 10<sup>th</sup> at the museum.

Mark your calendars now. The speaker for November will be Jerimy J. Cunningham, a PhD candidate at McGill University who will talk on: "How to Make Money from Mud: Ceramic Marketing and Exchange in the Inland Niger Delta of Mali (West Africa)."

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As always, our meeting will be held at 8 pm at the London Museum of Archaeology, 1600 Attawandaron Road, near the corner of Wonderland & Fanshawe Park Road, in the northwest part of the city.

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Jim Keron (285-2379)  
R.R. # 2 Thamesford N0M 2M0  
Jkeron@alumni.uwaterloo.ca

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1376 Sunningdale Road E.

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cjellis@julian.uwo.ca  
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dpoulton@webgate.net

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# **The Masterson Heights Site (AgGt-105): A Late Archaic Period Site in St. Catharines, Ontario**

by  
**Jim Esler**  
Mayer Heritage Consultants Inc.

## **INTRODUCTION**

As a condition of approval required under the *Planning Act R.S.O. 1990*, an archaeological assessment (Stages 1 to 3) was conducted by Mayer Heritage Consultants Inc. in 2000 for the proposed Masterson Heights draft plan of subdivision (26T-10-00002) on part of Lots 21 and 22, Concession 9, City of St. Catharines (formerly Grantham Township, Lincoln County), R.M. of Niagara, Ontario (Figure 1). That assessment determined that an Aboriginal archaeological site (AgGt-105) containing a surface lithic scatter with two loci was in the study area and exhibited high information potential and archaeological significance by provincial standards. In compliance with provincial guidelines, a Stage 4 mitigative excavation was undertaken because impacts from proposed construction could not be avoided.

## **STAGE 1 BACKGROUND RESEARCH**

The study area is within a portion of the Iroquois Plain physiographic region – a narrow lowland between Lake Ontario and the Niagara Escarpment that was formerly inundated by glacial Lake Iroquois, and is commonly known as the Niagara Fruit Belt (Chapman and Putnam 1984:190-196). The general area includes higher terraces adjacent to the Niagara Escarpment. Wave action and lacustrine deposits have smoothed the former lake bottom area on which the study area is situated. The surface soil on the site is Toledo silty clay with poor drainage and smooth basin to level topography.

Twelve Mile Creek is within 100 metres to the east of the study area at the bottom of a steep hill. This source of water would have had seasonal floral and aquatic resources as well as attracting birds and animals. A number of different Aboriginal cultural groups, with greatly varying lifestyles and settlement patterns, occupied the general region for thousands of years. Physical traces of their occupations and activities are normally found in close proximity to natural sources of water such as this for drinking and cooking purposes, as well as for transportation.

Although the Ontario Ministry of Culture (MCul) database (von Bitter 2000) indicates that there were no previously registered archaeological sites on the property, there are 13 sites within 2,000 metres of it (Table 1).

## **STAGE 2 GENERAL SURVEY**

The Stage 2 general survey employed the standard pedestrian survey method at a five-metre interval. The ploughed ground surface provided good visibility and the topsoil was well weathered by many heavy rains. Whenever surface artifacts were found, the survey interval was intensified to one-metre for a radius of 20 metres around each artifact in order to determine the full extent of site area. Each artifact was flagged for subsequent computer mapping by an Ontario Land Surveyor from The Larocque Group. A photographic record of the survey conditions was maintained.

Hand-shovel test pits (each approximately 35 cm in diameter and 40 cm deep) were excavated at five-metre intervals in a manicured lawn around a barn and garage that were included in the study area. None of the shovel-test pits contained any cultural material. In addition, the mechanical removal of plough zone topsoil was monitored on three sides of the Boyd family pioneer cemetery in order to confirm that no graves extended beyond the existing fenced limits of the



Figure 2: Location of AgGt-105.

## MASTERSON HEIGHTS

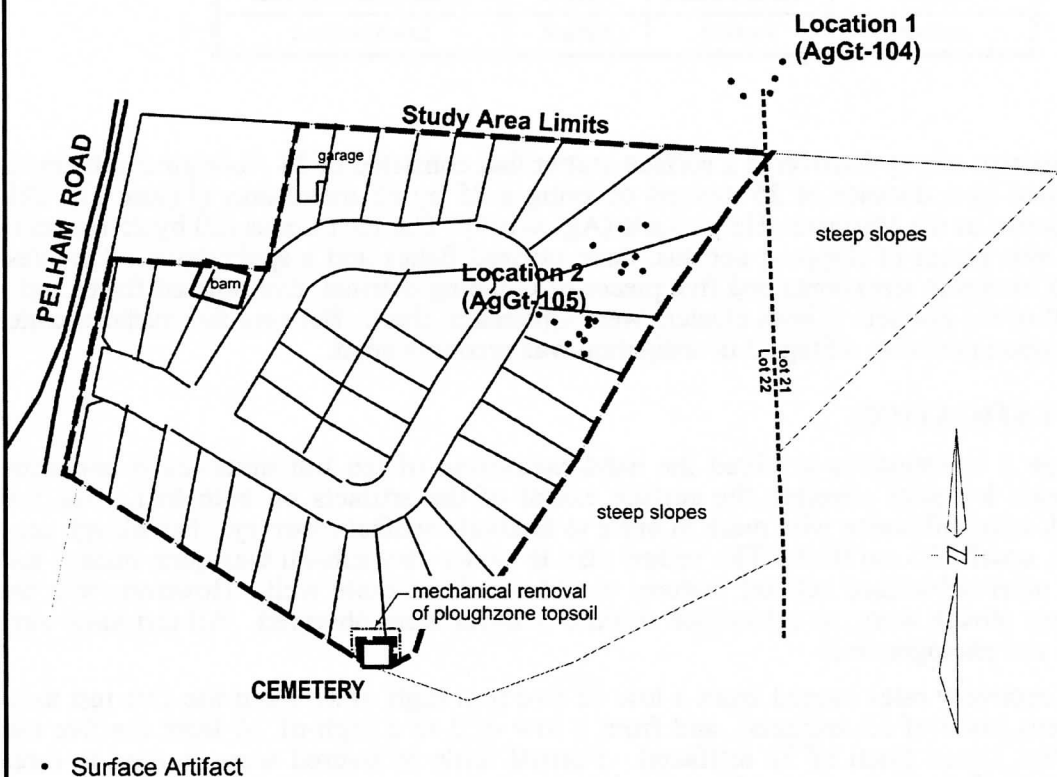
PART OF LOTS 21 & 22

CONCESSION 9

IN THE GEOGRAPHIC TOWNSHIP OF GRANTHAM, FORMERLY COUNTY OF LINCOLN

CITY OF ST. CATHARINES

REGIONAL MUNICIPALITY OF NIAGARA



THE LAROCQUE GROUP

O.L.S./PROJECT CONSULTANTS/LAND MANAGEMENT



**Table 1: Registered Archaeological Sites within 2,000 Metres of the Study Area.**

<i>REGISTRATION #</i>	<i>SITE NAME</i>	<i>SITE TYPE</i>	<i>CULTURAL AFFILIATION</i>
AgGt-26	not named	findspot	undetermined Aboriginal
AgGt-27	not named	findspot	undetermined Aboriginal
AgGt-28	not named	findspot	undetermined Aboriginal
AgGt-29	not named	findspot	undetermined Aboriginal
AgGt-30	not named	findspot	undetermined Aboriginal
AgGt-31	not named	findspot	undetermined Aboriginal
AgGt-35	Johansen	camp	Early to Late Archaic
AgGt-39	Vansickle Road 1	findspot	undetermined Aboriginal
AgGt-40	Vansickle Road 2	findspot	undetermined Aboriginal
AgGt-41	Vansickle Road 3	findspot	undetermined Aboriginal
AgGt-42	Vansickle Road 4	findspot	undetermined Aboriginal
AgGt-43	Vansickle Road 5	findspot	undetermined Aboriginal
AgGt-50	Foxfield	findspot	Late Woodland

The pedestrian survey discovered a surface scatter that consisted of 24 Aboriginal artifacts in two loci (separated by a distance of 25 metres) covering a 25 by 65 metre area (Figure 2). This scatter was registered as the Masterson Heights site (AgGt-105). The East Locus (20 by 25 metres in size) contained nine pieces of chipping detritus, three utilized flakes and a spokeshave. The West Locus (15 by 15 metres in size) contained five pieces of chipping detritus, five utilized flakes and a spokeshave. All of the artifacts in both clusters were Onondaga chert. Because this surface scatter exhibited information potential, a Stage 3 investigation was recommended.

### STAGE 3 INVESTIGATION

The Stage 3 investigation involved the hand-excavation of ten test units (each one-metre square) at strategic locations covering the surface extent of the artifacts on both loci. The soil screened through a six-millimetre wire mesh in order to facilitate artifact recovery. The plough zone topsoil was clay, usually 25 cm thick. The yellow clay to sandy clay subsoil was quite distinct and post moulds or other subsurface cultural features would stand out quite well. However, with the exception of some plough scars, no subsurface cultural features were observed. All test units were drawn in profile and photographed.

Artifact recovery rates ranged from a low of five to a high of 18 from the five test units on the East Locus (total of 53 artifacts), and from a low of 3 to a high of 34 from the five test units on the West Locus (total of 52 artifacts). Formal tools recovered were limited to three spokeshaves and a biface tip fragment. The remaining material was all chipping detritus.

### STAGE 4 MITIGATION

The Stage 4 mitigative excavation started June 13, 2000 and continued at various times to February 9, 2001. Subsurface cultural features were mapped in plan view and profile, with half of the feature fill screened and the other half taken as a flotation sample. Charcoal from the features was collected prior to screening. The topsoil from the East Locus was mechanically removed from a five-metre wide buffer zone surrounding the maximum extent of the hand-excavation. This was accomplished by a backhoe with a straightedge or ditching bucket. The exposed subsoil was then shovel-shined. Field notes and a photographic record of all the activities conducted on-site were kept.

Winter excavations were made possible by the construction of portable wooden shelters covered in clear plastic (Figure 3). The shelters ranged in size from three metres square to just over five metres square. Propane heaters were used inside the shelters to thaw and dry the soil prior to excavation (Figure 4). Two to three days of continual heat were required to thaw the ground, depending on the number of units to be excavated and the work area to be heated.

Of the 552 test units (each one-metre square) that were hand-excavated on the site, 185 were on the East Locus and 367 were on the West Locus. The plough zone topsoil was screened through a six mm wire mesh in order to facilitate artifact recovery. As directed by the Ontario Ministry of Culture, the units were excavated in contiguous block fashion until artifact recovery rates of 15 or less on the East Locus and 20 or less on the West Locus were attained. Of the 11,483 Aboriginal artifacts recovered (2,643 from the East Locus and 8,840 from the West Locus), 11,168 (97.2%) are pieces of chipping detritus, 162 are utilized flakes, 32 are bifaces or biface fragments, 34 are scrapers, 29 are pieces of fire-cracked rock, 19 are cores, 12 are spokeshaves, ten are projectile points or point fragments, nine are animal bone fragments, four are burins, three are wedges, and one is a drill (Mayer Heritage Consultants Inc. 2001). The plough zone from the area surrounding the East Locus was mechanically removed and all exposed subsoil interface was shovel-shined. A single subsurface cultural feature, a hearth, was found and documented. The exposed subsoil on the West Locus was also shovel-shined and a second feature was found and documented.

## East Locus

One hundred and eighty-five square metres were hand-excavated on the East Locus (Figure 5). Artifact recovery rates per test unit range from a low of zero to a high of 73. The mechanical removal of topsoil limits covers an irregularly shaped 30 by 35 metre area. Of the 2,643 pre-contact Aboriginal artifacts recovered, 2,512 (95%) are chipping detritus (Table 2). The artifacts in each artifact class are described separately below. Figure 6 illustrates a sample of the lithic artifacts.

### *Projectile Points*

Two projectile points along with a point preform and a basal fragment were recovered from the East Locus (Table 3). The two diagnostic points strongly resemble the Innes point type, which is defined as having "convex lateral blade edges, slightly sloping to slightly barbed shoulders, and an expanding stem base with a convex basal edge" (Lennox 1986:231). One of the points has a 'pig' shape impossible. This makes the determination of the cross-sectional shape impossible. The remaining diagnostic point is plano-convex in cross section. The raw material used for the manufacture of these artifacts varies. One of the diagnostic points and the basal fragment are Onondaga chert. The other diagnostic point is of Haldimand chert and the preform is

**Table 2: Artifacts from the East Locus.**

<i>ARTIFACT CLASS</i>	<i>FREQUENCY</i>
drill	1
wedge	2
bone/antler/shell fragment	3
fire-cracked rock	4
projectile point/point fragment	4
spokeshave	6
core	10
scraper	15
biface	16
utilized flake	70
chipping detritus	2,512
<b>Total</b>	<b>2,643</b>

**Figure 3: Heated Shelters on West Locus (facing NE).**



**Figure 4: Typical Propane Heater Used in Shelters on West Locus.**



**Table 3: Projectile Points from the East and West Loci (AgGt-105).**

CAT #	LENGTH (mm)	SHOULDER WIDTH (mm)	STEM WIDTH (mm)	BASE WIDTH (mm)	SHOULDER HEIGHT (mm)	THICKNESS (mm)	CROSS-SECTION	REMARKS
1237	34.8	23.7	10.2	8.3	7.1	4.9	plano-convex	East Locus, Haldimand chert
1546	36.0	20.7	11.3	19.9	12.9	7.4	—	East Locus
1081b	(28.5)	23.2	11.6	12.0	8.8	6.6	—	East Locus, preform, Collingwood chert
1098	—	—	—	16.3	—	4.6	—	East Locus, base fragment
1608	27.4	24.0	10.3	—	6.7	5.1	lenticular	West Locus
1305	36.9	19.6	12.9	17.1	14.1	6.7	plano-convex	West Locus, Kettle Point chert
1637	32.2	27.9	6.8	15.6	8.2	5.4	plano-triangular	West Locus
1246	36.9	23.6	10.7	—	9.7	5.4	lenticular	West Locus
1451	(20.5)	21.6	10.2	11.1	10.7	6.2	plano-convex	West Locus
1480	(21.8)	(15.8)	—	—	—	4.4	—	West Locus

( ) = Maximum measurement of broken fragment

Collingwood chert. The preform has a similar form to the diagnostic points, but is incomplete and may have broken during manufacture. The basal fragment is an expanding stem with a ground base.

### *Bifaces*

Of the 16 bifaces recovered, one is a base fragment, two are fragments of small triangular bifaces, seven are tip fragments and six are non-diagnostic fragments that exhibit bifacial flaking (Table 4). All are Onondaga chert; with the exception of an ovate-triangular base fragment that is Selkirk chert.

### *Drill and Wedges*

The drill fragment recovered is Onondaga chert and, although missing the base, is triangular in form (Table 5). It is bifacially flaked and tapers towards the tip, and is 37.0 mm long, 15.1 mm wide and 8.7 mm thick. Both of the fragmentary wedges recovered show evidence of battering and crushing on one edge only.

### *Scrapers*

All of the 15 scrapers recovered are Onondaga chert (Table 6). One has two worked edges and another also has a spokeshave concavity. Five are made on primary flakes while the remainder are on secondary flakes. The retouch primarily occurs as a straight edge on the lateral distal margin of the flake.

### *Spokeshaves*

All of the six spokeshaves recovered are Onondaga chert and have a concave worked edge mainly on the lateral margin of a primary or secondary flake (Table 7). One spokeshave has two such concavities.



**Table 4: Bifaces from the East Locus (AgGt-105).**

<i>CAT. #</i>	<i>CHERT TYPE</i>	<i>LENGTH (mm)</i>	<i>WIDTH (mm)</i>	<i>THICKNESS (mm)</i>	<i>REMARKS</i>
1054	Selkirk	(36.9)	41.7	11.0	ovate-triangular base fragment
1193	Onondaga	31.6	(15.4)	5.3	triangular fragment
1359	Onondaga	(15.1)	23.9	5.1	triangular base fragment
1803	Onondaga	25.5	20.2	4.4	tip
1188	Onondaga	16.0	16.7	7.3	tip
1195	Onondaga	14.6	18.2	3.9	tip
1177	Onondaga	23.6	27.5	4.9	tip
1110	Onondaga	24.0	22.8	6.7	tip
1162a	Onondaga	32.4	27.3	5.1	tip
1162b	Onondaga	14.9	13.2	4.2	tip
1182	Onondaga	11.7	28.0	5.7	fragment
1153b	Onondaga	12.6	11.9	5.1	fragment
1088b	Onondaga	30.7	18.9	10.0	fragment
1194b	Onondaga	12.3	7.3	4.2	fragment
1168c	Onondaga	28.4	13.6	6.4	fragment
1168d	Onondaga	27.2	17.3	10.9	fragment

( ) = Maximum measurement of broken fragment

**Table 5: Miscellaneous Chipped Stone Tools from the East and West Loci (AgGt-105).**

<i>CAT. #</i>	<i>ARTIFACT CLASS</i>	<i>FLAKE TYPE</i>	<i>LENGTH (mm)</i>	<i>WIDTH (mm)</i>	<i>THICKNESS (mm)</i>	<i>RETOUCHED EDGE*</i>	<i>SHAPE</i>	<i>HEIGHT (mm)</i>	<i>REMARKS</i>
1233b	wedge	---	15.1	11.7	4.1	---	---	---	East Locus
1227b	wedge	---	20.0	18.1	8.3	---	---	---	East Locus
1211	drill	---	37.0	15.1	8.7	---	---	---	East Locus
1437	wedge	---	22.7	29.6	7.8	---	---	---	West Locus
1829	burin	secondary	31.6	16.1	4.4	ERV	convex	2.7	West Locus
1702	burin	secondary	34.4	17.5	7.0	DiV	convex	3.4	West Locus
1719	burin	secondary	30.5	20.2	5.1	DiDr	convex	2.5	West Locus
1279	burin	primary	31.0	19.3	8.3	DiDr	convex	2.3	West Locus

\* Edge retouch location abbreviations: L = Lateral; Di = Distal; ER = Edge Rounding; Dr = Dorsal; V = Ventral

### ***Cores***

All six random and four bipolar cores are manufactured from Onondaga chert (Table 8).

### ***Utilized Flakes***

Of the 70 utilized flakes recovered, 65 exhibit use-wear on at least one edge while the remaining 5 have use-wear on two edges (Table 9). Use-wear appears primarily on the lateral margin of a secondary flake. Straight (28) and concave (28) utilized edges are most common, followed by

convex (19) edges. One utilized flake was Collingwood chert while the remainder are Onondaga chert. Two of the Onondaga utilized flakes exhibit signs of heat-treating.

**Table 6: Scrapers from the East Locus (AgGt-105).**

CAT. #	FLAKE TYPE	LENGTH (mm)	WIDTH (mm)	THICKNESS (mm)	EDGE RETOUCH*	SHAPE	LENGTH (mm)	HEIGHT (mm)	REMARKS
1191	secondary	36.7	16.3	6.2	LV	straight	17.5	2.1	—
1031	secondary	30.6	19.1	6.8	LDr	straight	11.9	2.4	—
1031	---	---	---	---	LDr	convex	7.2	1.6	second worked edge
1454	secondary	26.0	23.7	7.9	LV	straight	13.4	2.4	—
1821	primary	51.0	32.2	10.9	LV	convex	16.9	3.3	—
1360b	primary	34.2	27.9	5.2	LV	concave	15.0	2.8	—
1161b	secondary	19.3	15.0	4.9	LDr	straight	14.8	2.5	—
1407b	secondary	19.4	16.8	3.5	DiV	straight	7.7	2.1	—
1064b	primary	29.1	12.3	8.0	DiDr	convex	10.7	5.2	—
1200c	secondary	24.1	16.9	4.3	DiDr	straight	10.1	3.1	—
1316b	primary	31.1	20.6	5.8	LDr	straight	14.7	3.0	—
1149b	secondary	15.1	14.6	2.9	LDr	concave	12.6	1.8	—
1166b	secondary	24.8	13.0	5.5	LDr	convex	13.6	3.0	—
1087	primary	40.1	14.3	7.6	LV	straight	16.5	2.5	—
1114	secondary	41.2	18.4	6.1	LDr	straight	16.8	1.7	—
1828	secondary	28.8	14.2	5.2	DiDr	straight	17.5	2.2	—
1807	secondary	49.1	32.3	7.9	LDr	concave	9.8	2.7	also a spokeshave
Means	—	31.3	19.2	6.2	—	—	13.3	2.6	—

\* Edge retouch location abbreviations: L = Lateral; Di = Distal; ER = Edge Rounding; Dr = Dorsal; V = Ventral

**Table 7: Spokeshaves from the East Locus (AgGt-105).**

CAT. #	FLAKE TYPE	LENGTH (mm)	WIDTH (mm)	THICKNESS (mm)	EDGE RETOUCH*	SHAPE	HEIGHT (mm)	REMARKS
1222b	secondary	18.6	18.1	2.7	LV	concave	2.7	---
1062b	secondary	27.5	17.8	4.3	LDr	concave	2.0	---
1457	primary	19.6	17.9	7.9	DiDr	concave	1.3	---
1124	primary	30.6	15.2	6.5	LV	concave	2.5	---
1124	---	---	---	---	LV	concave	1.9	second worked edge
1807	secondary	49.1	32.3	7.9	DiV	concave	3.0	also a scraper
1463	primary	28.8	14.2	5.2	LDr	concave	2.6	---
Means	—	29.0	19.3	5.8	—	—	2.3	—

\* Edge retouch location abbreviations: L = Lateral; Di = Distal; ER = Edge Rounding; Dr = Dorsal; V = Ventral

### ***Chipping Detritus***

For the purposes of this analysis, the 2,512 pieces of chipping detritus recovered were grouped into four categories: primary; secondary; tertiary and debris (Table 10). The majority of the detritus is Onondaga chert (93.6%) with smaller amounts of Haldimand (5.5%) and Selkirk chert (0.2%). Unidentified chert types represent 0.7% of the chipping detritus.

Primary flakes constitute 13.9% of the identified assemblage, while secondary flakes, the smaller flakes removed to shape biface preform or tools, account for 11.2%. Tertiary flakes are small flakes removed in forming and sharpening bifacial tools, and constitute 15.3% of the detritus. Debris accounts for the remainder of the identifiable flakes (59.5%).

**Table 8: Cores from the East Locus (AgGt-105).**

<b>CAT. #</b>	<b>CHERT TYPE</b>	<b>CORE TYPE</b>	<b>LENGTH (mm)</b>	<b>WIDTH (mm)</b>	<b>THICKNESS (mm)</b>
1072	Onondaga	random	51.5	39.2	21.9
1095	Onondaga	random	37.7	22.7	19.3
1103	Onondaga	random	31.1	27.9	14.2
1123	Onondaga	bipolar	39.4	27.8	13.4
1129	Onondaga	random	61.3	42.1	22.3
1146	Onondaga	bipolar	49.1	30.1	17.5
1154	Onondaga	random	40.6	39.4	15.8
1169	Onondaga	random	30.6	22.3	17.0
1212	Onondaga	bipolar	30.0	21.7	10.6
1355	Onondaga	bipolar	47.4	30.2	10.7
<b>Means</b>	<b>—</b>	<b>—</b>	<b>41.9</b>	<b>30.3</b>	<b>16.3</b>

### ***Faunal Material***

Of the three very fragmentary pieces of faunal material (animal) bone recovered, two are calcined. All three are too small to identify to genus.

### ***Ground and Rough Stone***

Four pieces of non-descript fire-cracked rock were recovered.

### ***Subsurface Cultural Features***

A circular subsurface cultural feature (40 cm in diameter by 8 cm deep) was found beneath the 27 cm thick layer of plough zone topsoil along the southern limit of the East Locus (Figure 7). This feature consisted of a matrix of charcoal with some ash, and contained five pieces of chipping detritus. None of the pieces of chert recovered exhibits signs of heat-treating. Half of the feature was taken as a float, and an additional charcoal sample was collected from the remainder of the feature prior to screening. A preliminary analysis of the charcoal has identified fragments of deciduous wood (Fecteau 2001). Due to the quantity of charcoal and ash present, the feature is identified as a hearth.

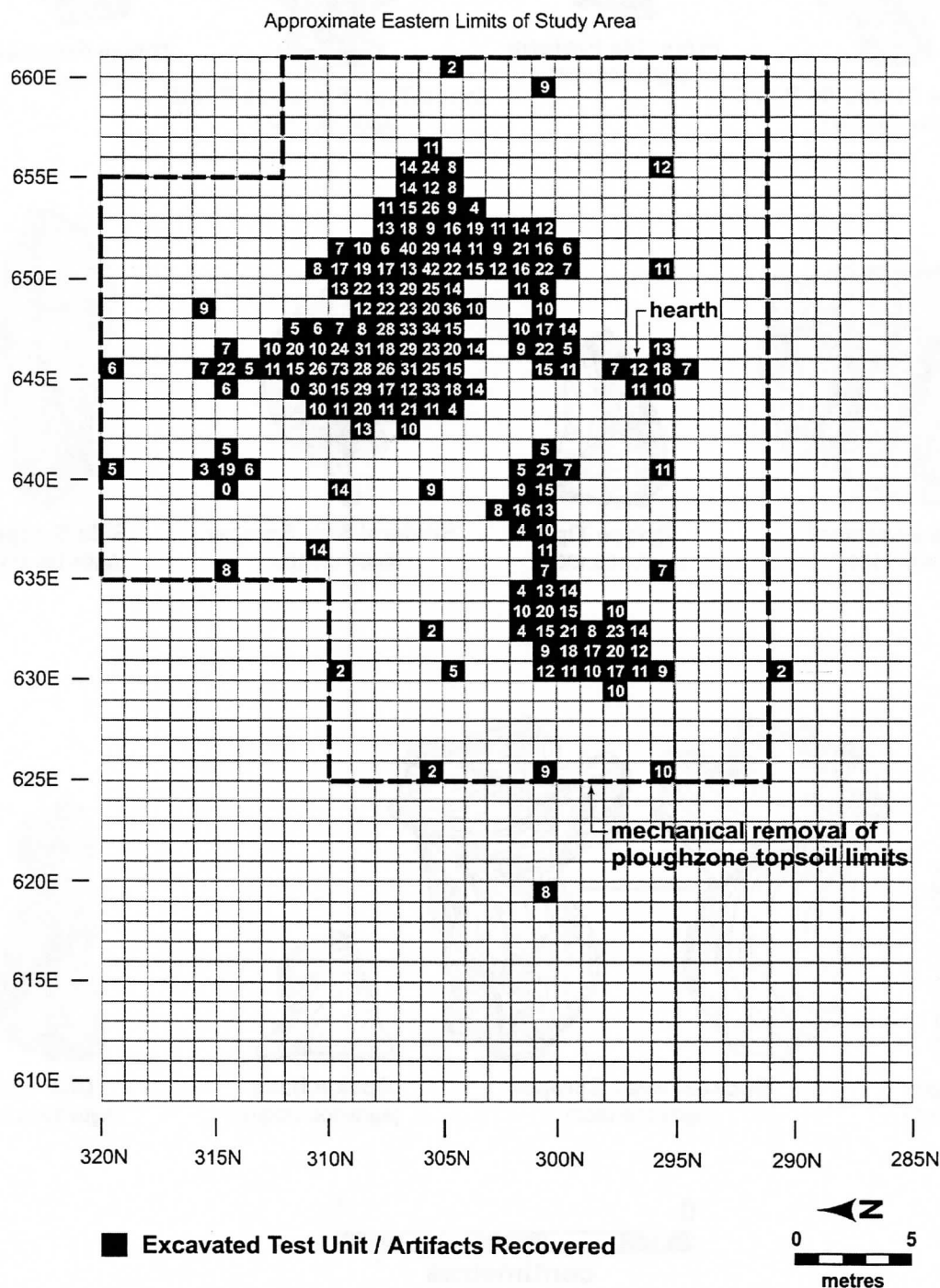
### **West Locus**

Three hundred and sixty-seven square metres hand-excavated on the West Locus covered an irregularly shaped 25 by 25 metre area (Figure 8). Artifact recovery rates per test unit range from a low of one to a high of 69. Of the 8,640 pre-contact Aboriginal artifacts recovered from the West

Locus, 8,656 (97.9%) are chipping detritus (Table 11). The artifacts in each artifact class are described separately below. Figure 9 illustrates a sample of the lithic artifacts.

Figures 10 to 12 show the locations of the formal tools, fire-cracked rock and burnt/calcined bone. Patterns in the distribution of these artifact classes were not noted.

**Figure 5: Stage 4 Mitigative Excavation Plan on East Locus of AgGt-105.**





**Figure 6: Lithic Artifacts Recovered from the East Locus of AgGt-105.**



**Innes-Type Projectile Point**  
(AgGt-105:1237)



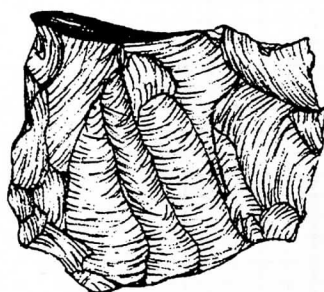
**Projectile Preform**  
(AgGt-105:1081)



**Innes-Type Projectile Point**  
(AgGt-105:1546)



**Biface Fragment**  
(AgGt-105:1193)



**Biface Fragment**  
(AgGt-105:1054)



**Biface Tip**  
(AgGt-105:1359)



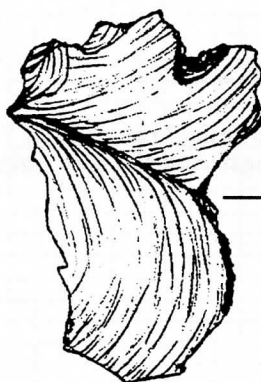
**Bilateral Side Scraper**  
(AgGt-105:1031)



**Side Scraper**  
(AgGt-105:1114)



**Side Scraper**  
(AgGt-105:1007)



**Spokeshave / Scraper**  
(AgGt-105:1807)



**Spokeshave**  
(AgGt-105:1222b)



**Drill Tip**  
(AgGt-105:1211)



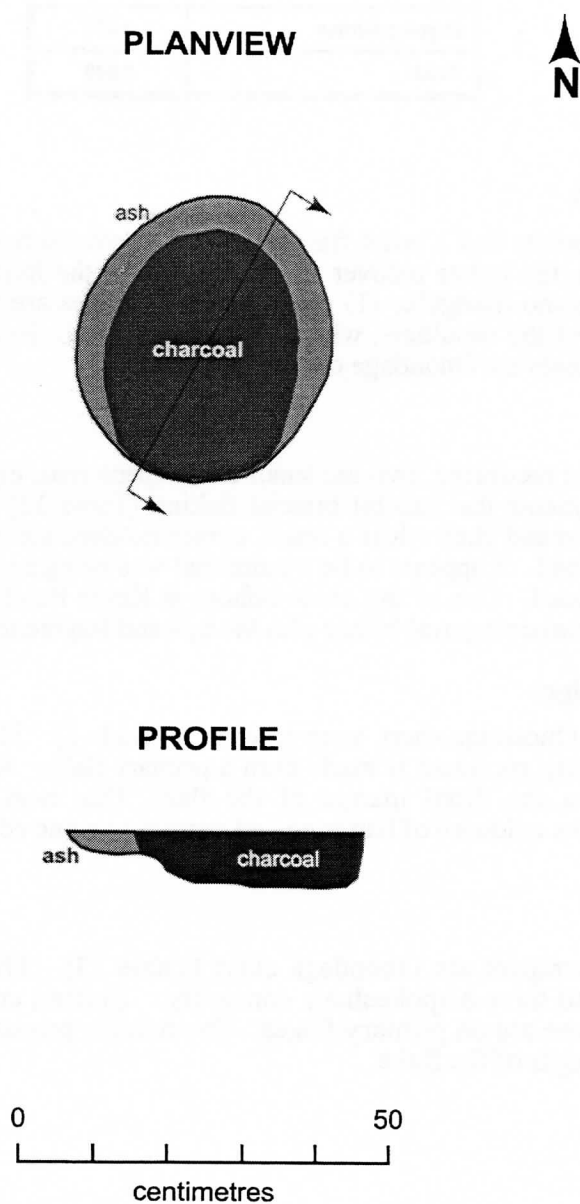
Table 9: Utilized Flakes from the East Locus (AgGt-105).

CAT #	FLAKE TYPE	LENGTH (mm)	WIDTH (mm)	THICKNESS (mm)	EDGE RETOUCH*	SHAPE	LENGTH (mm)	REMARKS
1015	secondary	23.3	26.1	4.2	LV	convex	17.3	---
1078	secondary	28.7	11.9	4.3	LDr	convex	9.3	---
1082	primary	39.9	34.1	7.9	LV	straight	10.8	---
1084	secondary	22.8	19.3	7.1	LDr	straight	12.4	---
1100	secondary	18.3	24.8	6.6	LV	straight	11.9	---
1106	secondary	26.8	10.2	6.2	LDr	convex	11.1	---
1108	secondary	13.1	25.9	6.1	DiV	convex	8.3	---
1122	secondary	33.4	31.0	8.7	LDr	straight	10.5	---
1136	secondary	28.2	15.6	4.9	LV	concave	8.4	---
1159	secondary	24.4	15.7	4.0	LV	convex	11.2	---
1172	primary	48.6	33.5	6.0	LV	straight	14.4	---
1172	---	---	---	---	DiDr	concave	14.0	second worked edge
1176	secondary	23.1	14.3	2.8	LV	straight	4.2	---
1180	secondary	21.1	13.7	3.8	LB	convex	13.9	---
1183	secondary	23.8	13.6	3.1	LV	concave	11.7	---
1186	secondary	18.5	9.7	2.7	LDr	convex	11.1	---
1203	secondary	24.6	20.4	5.7	ERV	convex	7.2	---
1403	secondary	25.4	15.9	3.5	DiV	convex	4.9	---
1406	secondary	20.4	29.9	4.7	LDr	concave	7.8	---
1461	primary	18.3	19.2	6.8	LV	concave	16.4	---
1543	secondary	36.8	26.1	5.9	LV	convex	12.8	---
1543	---	---	---	---	LV	straight	9.5	second worked edge
1632	secondary	25.5	26.4	4.8	DiDr	straight	20.4	---
1804	secondary	15.3	10.2	3.4	LV	straight	10.8	---
1812	secondary	20.4	18.8	3.1	LDr	convex	8.4	---
1825	secondary	29.4	26.4	5.1	LDr	straight	14.9	---
1165a	secondary	25.7	14.6	4.0	LDr	concave	8.3	---
1165b	secondary	25.2	14.8	4.9	LDr	straight	14.5	---
1356a	secondary	15.2	14.7	3.7	DiDr	straight	10.4	---
1356b	secondary	24.9	23.3	5.2	LV	straight	11.1	---
1356c	secondary	22.8	16.7	4.4	LDr	concave	11.6	---
1356d	secondary	23.8	21.6	8.4	LDr	concave	13.2	---
1795a	secondary	22.9	23.1	7.1	LDr	straight	7.0	---
1795b	tertiary	18.9	17.8	5.7	LV	concave	4.4	---
1808a	secondary	17.2	15.0	2.6	LDr	convex	10.4	---
1808b	secondary	21.9	17.8	4.1	DiDr	convex	10.5	---
1049b	secondary	17.2	14.9	3.7	LDr	straight	7.5	---
1052b	secondary	17.1	11.3	2.7	LV	concave	11.3	---
1053b	secondary	28.3	20.4	7.5	LDr	straight	10.8	---



**Table 10: Chipping Detritus from the East Locus (AgGt-105).**

<i>FLAKE TYPE</i>	<i>ONONDAGA</i>	<i>HALDIMAND</i>	<i>SELKIRK</i>	<i>UNIDENTIFIED</i>	<i>TOTALS</i>
primary	320	24	1	5	350
secondary	258	22	1	1	282
tertiary	363	16	2	4	385
debris	1,409	75	0	11	1,495
<b>Totals</b>	<b>2,350</b>	<b>137</b>	<b>4</b>	<b>21</b>	<b>2,512</b>

**Figure 7: Planview and Profile of Feature 1 on East Locus of AgGt-105.**



**Table 11: Summary of the Artifacts Recovered from the West Locus (AgGt-105).**

<i>ARTIFACT CLASS</i>	<i>FREQUENCY</i>
wedge	1
burin	4
bone/antler/shell fragment	6
projectile point/point fragment	6
spokeshave	6
core	9
biface	16
scraper	19
fire-cracked rock	25
utilized flake	92
chipping detritus	8,656
<b>Total</b>	<b>8,840</b>

### ***Projectile Points***

Five projectile points and a point fragment were recovered from the West Locus (Table 3). As with the East Locus, the points recovered strongly resemble the Innes point type. Lenticular (2), plano-convex (2) and plano-triangular (1) cross-sectional shapes are present. The point fragment appears to contain one of the shoulders, which is slightly barbed. Except for one point made from Kettle Point chert, all others are Onondaga chert.

### ***Bifaces***

Of the 16 bifaces recovered, two are small ovate specimens, eight are tip fragments and five are non-diagnostic fragments that exhibit bifacial flaking (Table 12). The remaining biface is an oddity made from Haldimand chert. It is a small, corner-notched piece that has longitudinal flaking running from the distal end. It appears to be a point that was being recycled into an end scraper, but the process was abandoned. One of the ovate bifaces is Kettle Point chert while a biface tip is of Haldimand chert. The remaining oval biface plus the tips and fragments are Onondaga chert.

### ***Burins and Wedges***

Four burins, all Onondaga chert, were recovered (Table 5). Three are made from secondary flakes while the remaining specimen is made from a primary flake. All exhibit a convex retouched edge, in three cases on the distal margin of the flake. One item exhibits end rounding. The fragmentary wedge shows evidence of battering and crushing on one edge only (Table 7).

### ***Scrapers***

All of the 19 scrapers are Onondaga chert (Table 13). Three have two worked edges while another three also have a spokeshave concavity. Sixteen are made on secondary flakes while the remaining three are on primary flakes. The retouch primarily occurs as a straight edge on the lateral distal margin of the flake.

### *Spokeshaves*

The six spokeshaves have a concave worked edge mainly on the lateral margin of a secondary flake (Table 14). One has two such concavities while another also has a scraping edge. All of the spokeshaves are Onondaga chert.

### *Cores*

Seven random and two bipolar cores, all Onondaga chert, were recovered (Table 15). One of the random cores exhibits signs of heat-treating.

### *Utilized Flakes*

Of the 92 utilized flakes recovered, 86 exhibit use-wear on at least one edge while the remaining 6 have use-wear on two edges (Table 16). Use-wear appears primarily on the lateral margin of a secondary flake. Straight (41) utilized edges are most common, followed by concave (36) and convex (21) edges. One specimen is Ancaster chert while all of the others being Onondaga chert. One of the Onondaga specimens exhibits signs of heat-treating.

### *Chipping Detritus*

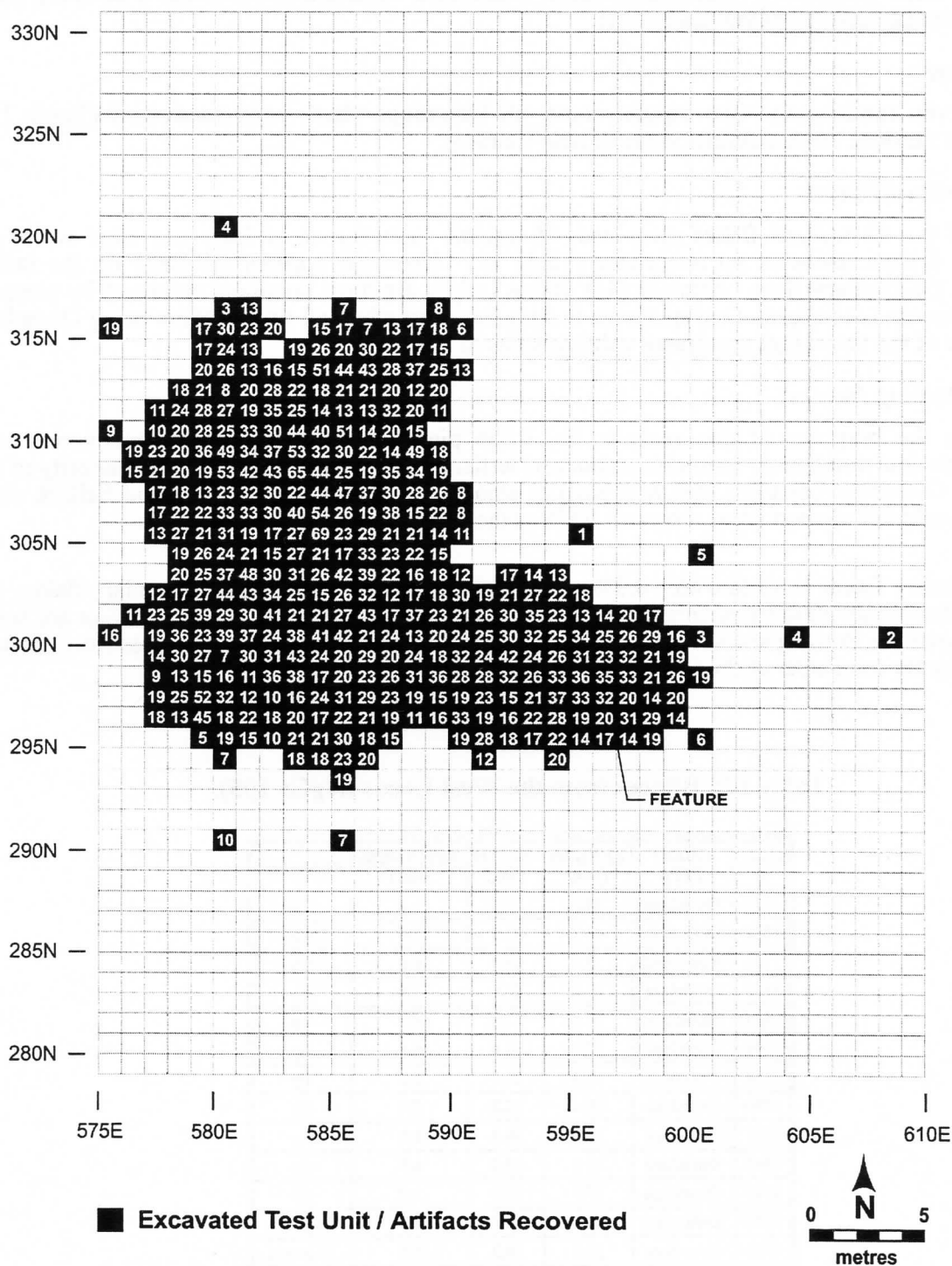
For the purposes of this analysis, the 8,656 pieces of chipping detritus recovered were grouped into four categories: primary; secondary; tertiary and debris (Table 17). The majority of the detritus is Onondaga chert (72.7%) with smaller amounts of Haldimand (26.4%) and Selkirk chert (0.1%). Unidentified chert types represent 0.8% of the chipping detritus.

Primary flakes constitute only 0.3% of the identified assemblage, while secondary flakes, the smaller flakes removed to shape biface preform or tools, account for 2.0%. Tertiary flakes are small flakes removed in forming and sharpening bifacial tools, and constitute 60.6% of the detritus. Debris accounts for the remainder of the identifiable flakes (37.2%).

**Table 12: Bifaces from the West Locus (AgGt-105).**

CAT. #	CHERT TYPE	LENGTH (mm)	WIDTH (mm)	THICKNESS (mm)	REMARKS
1333	Onondaga	54.3	37.2	9.3	ovate
1858	Kettle Point	43.1	29.1	7.4	ovate
1760	Haldimand	23.0	15.7	6.1	hafted
1655	Onondaga	27.2	23.9	9.0	tip
1439	Haldimand	17.8	17.4	4.4	tip
1396	Onondaga	27.7	21.6	6.5	tip
1750	Onondaga	19.9	21.7	5.2	tip
1290	Onondaga	26.4	25.2	5.7	tip
1377	Onondaga	28.0	18.3	6.5	tip
1745	Onondaga	23.0	15.0	4.8	tip
1740	Onondaga	27.8	27.0	7.9	tip
1523	Onondaga	23.1	16.4	9.3	fragment
1039	Onondaga	27.3	14.3	5.5	fragment
1765	Onondaga	25.1	18.8	7.9	fragment
1020	Onondaga	26.3	23.7	5.3	fragment
1376b	Onondaga	19.7	10.0	6.9	fragment

Figure 8: Stage 4 Mitigative Excavation Results on West Locus of AgGt-105.



**Figure 9: Lithic Artifacts Recovered from the West Locus of AgGt-105.**



**Innes-Type Projectile Point**  
(AgGt-105:1608)



**Innes-Type Projectile Point**  
(AgGt-105:1246)



**Innes-Type Projectile Point**  
(AgGt-105:1451)



**Innes-Type Projectile Point**  
(AgGt-105:1305)



**Innes-Type Projectile Point**  
(AgGt-105:1637)



**Side Scraper**  
(AgGt-105:1252)



**Biface**  
(AgGt-105:1858)



**Biface**  
(AgGt-105:1333)



**Side Scraper**  
(AgGt-105:1685)



**Spokeshave**  
(AgGt-105:1009)



**Spokeshave**  
(AgGt-105:1799)



**Burin**  
(AgGt-105:1829)





**Table 13: Scrapers from the West Locus (AgGt-105).**

CAT. #	FLAKE TYPE	LENGTH (mm)	WIDTH (mm)	THICKNESS (mm)	EDGE RETOUCH*	SHAPE	LENGTH (mm)	HEIGHT (mm)	REMARKS
1844	secondary	28.1	18.9	12.5	ERDr	convex	10.6	1.3	---
1871	secondary	26.9	24.7	8.8	DiDr	straight	15.0	2.9	---
1524	secondary	38.8	22.3	5.1	DiDr	convex	17.6	3.4	---
1310	secondary	23.9	15.0	3.1	LDr	straight	6.9	1.0	---
1641	secondary	23.2	21.5	4.8	DiDr	straight	10.5	2.5	also a spokeshave
1815	secondary	25.2	14.3	4.7	LV	straight	7.0	2.1	also a spokeshave
1493	primary	36.5	22.4	6.6	LV	convex	19.9	3.4	---
1436	primary	51.1	22.8	8.5	PDr	convex	9.7	2.1	---
1472	primary	18.3	17.5	4.7	LDr	straight	10.5	2.7	---
1252	secondary	41.7	19.0	5.1	LDr	straight	30.9	3.7	---
1033	secondary	45.7	21.9	7.1	LDr	straight	11.3	1.4	---
1033	---	---	---	---	LDr	straight	11.1	1.6	second worked edge
1306	secondary	24.6	19.1	4.6	DiDr	convex	10.1	1.6	---
1282	secondary	27.9	22.0	9.6	LDr	convex	34.8	3.2	---
1876	secondary	28.1	19.1	5.7	LDr	convex	7.1	2.5	---
1613a	primary	35.4	17.1	8.1	LDr	straight	9.4	2.0	---
1613b	secondary	22.7	20.2	3.3	LDr	straight	9.9	2.0	---
1613b	---	---	---	---	LDr	straight	8.9	1.1	second worked edge
1685	secondary	27.6	27.5	3.5	LV	straight	14.6	2.5	---
1685	---	---	---	---	LDr	straight	16.1	1.7	second worked edge
1020a	primary	50.0	24.7	11.0	ERV	convex	23.5	3.1	---
1560	secondary	31.2	18.3	5.4	LDr	straight	22.1	3.3	---
1663	secondary	28.4	26.3	8.9	LDr	straight	22.5	1.8	---
1799	secondary	29.4	19.1	4.6	LDr	straight	15.6	3.5	also a spokeshave
<b>Means</b>	---	<b>31.7</b>	<b>20.7</b>	<b>6.5</b>	---	---	<b>14.8</b>	<b>2.4</b>	---

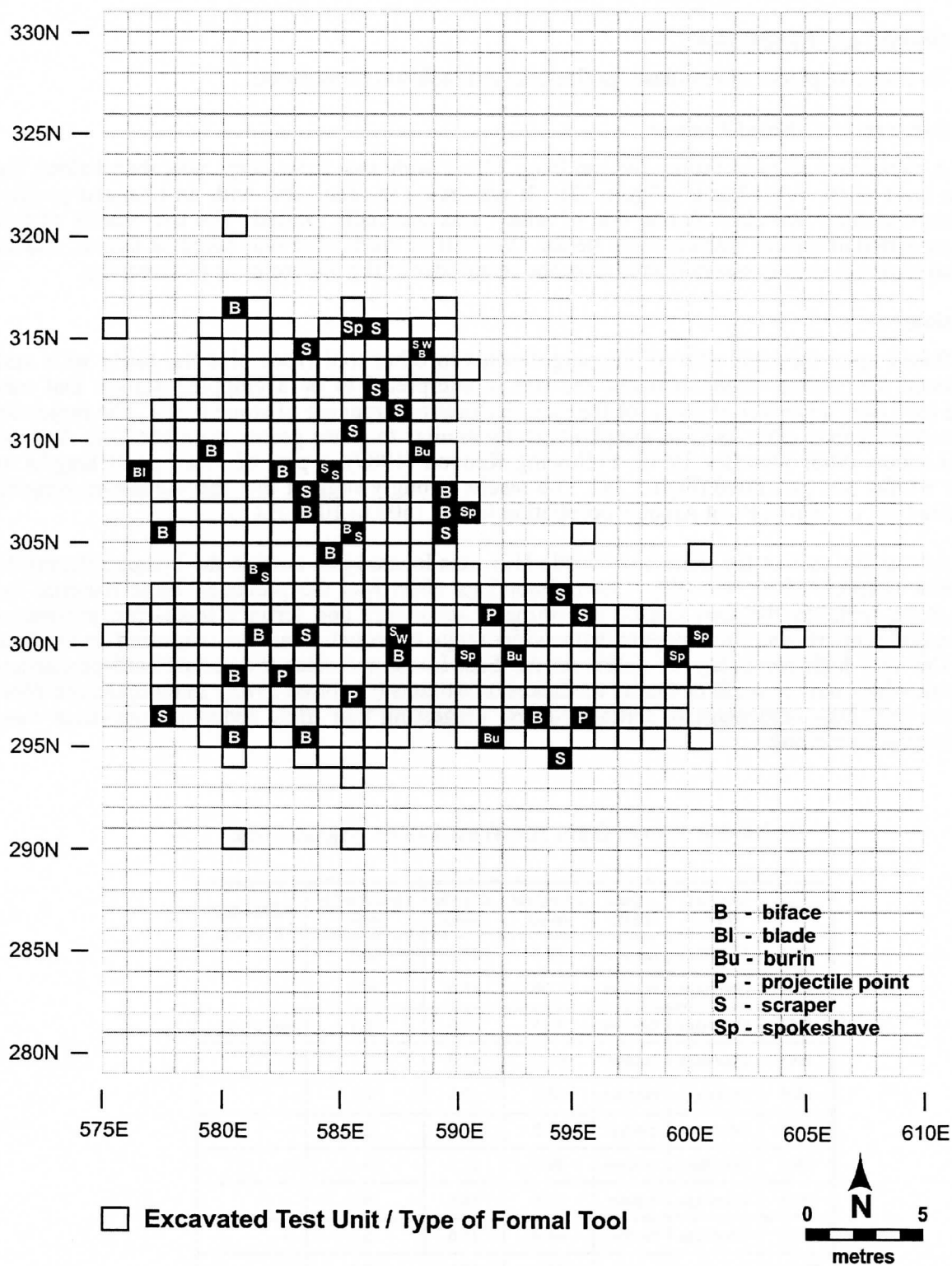
\* Edge retouch location abbreviations: L = Lateral; Di = Distal; ER = Edge Rounding; Dr = Dorsal; V = Ventral

**Table 14: Spokeshaves from the West Locus (AgGt-105).**

CAT. #	FLAKE TYPE	LENGTH (mm)	WIDTH (mm)	THICKNESS (mm)	EDGE RETOUCH*	SHAPE	HEIGHT (mm)	REMARKS
1328	secondary	16.0	11.0	2.0	LV	concave	1.1	---
1009	secondary	32.2	26.0	4.0	LV	concave	2.5	---
1799	secondary	29.4	19.1	4.6	LV	concave	2.9	also a scraper
1815	secondary	25.2	14.3	4.7	LD	concave	2.8	also a scraper
1641	secondary	23.2	21.5	4.8	LV	concave	2.3	also a scraper
1041	secondary	22.2	24.4	6.2	LDr	concave	3.0	---
1041	---	---	---	---	LV	concave	4.1	second worked edge
1646	primary	26.1	16.1	4.9	DiDr	concave	4.5	---
<b>Means</b>	---	<b>24.9</b>	<b>18.9</b>	<b>4.5</b>	---	---	<b>2.9</b>	---

\* Edge retouch location abbreviations: L = Lateral; Di = Distal; ER = Edge Rounding; Dr = Dorsal; V = Ventral

**Figure 10: Locations of Formal Tools on West Locus of AgGt-105.**



### ***Faunal Material***

Of the six very fragmentary pieces of bone recovered, four are calcined (*i.e.*, charred white). All six are too small to identify to genus.

### ***Ground and Rough Stone***

Twenty-five pieces of non-descript fire-cracked rock were recovered.

### ***Subsurface Cultural Feature***

A subsurface cultural feature (48 cm long, 32 cm wide and 7 cm deep) was found along the southern limit of the West Locus (Figure 13). It was ovate in plan view with an irregular profile. This feature yielded two chert flakes, one of which was thermally altered. The soil matrix of this feature consisted of topsoil with charcoal flecks. One-half of the feature was taken as a float, and an additional charcoal sample was collected from the remainder of the feature prior to screening.

### **Conclusions**

Based upon the high ratio of chipping detritus to other tool types plus the fairly wide and concentrated distribution of the artifacts, the site is interpreted to be a chipping station that was repeatedly used over a number of years for the manufacture/resharpening of stone tools. The projectile points recovered from both loci are morphologically similar to Innes points from the Late Archaic period (Lennox 1986, Woodley 1990). Following Kenyon (1989), a plot of mean point lengths to shoulder widths was generated (Figure 14). The results strongly suggest that the Masterson Heights site (AgGt-105) is a Small Point Archaic occupation (*circa* 1500 to 1000 B.C.).

As was the case at the Innes and Thistle Hill sites located just outside the Niagara Peninsula to the west (Lennox 1986, Woodley 1990), Onondaga chert was the preferred lithic material for making stone tools. In the East Locus, the primary, secondary and tertiary flakes are present in roughly equal proportions. This suggests that a wider range of reduction activity occurred on the East Locus. The very high percentage of debris on the East Locus indicates the use of hard-percussion techniques, which tend to crush or shatter the flakes or artifacts (Crabtree 1982). In contrast, the West Locus has very high percentage of tertiary flakes, suggesting that lithic reduction activities were limited to biface finishing.

**Table 15: Cores from the West Locus (AgGt-105).**

<i>CAT. #</i>	<i>CHERT TYPE</i>	<i>CORE TYPE</i>	<i>LENGTH (mm)</i>	<i>WIDTH (mm)</i>	<i>THICKNESS (mm)</i>	<i>REMARKS</i>
1245	Onondaga	random	28.7	27.4	12.3	---
1249	Onondaga	random	57.9	41.0	30.2	---
1260	Onondaga	random	40.3	33.0	18.1	heat-treated
1283	Onondaga	random	62.6	41.0	24.1	---
1469	Onondaga	random	26.6	22.8	9.7	---
1533	Onondaga	bipolar	43.2	25.9	12.7	---
1562	Onondaga	random	39.0	31.7	13.5	---
1621	Onondaga	bipolar	55.3	34.6	18.0	---
1659	Onondaga	random	44.9	31.6	16.4	---
<b>Means</b>	—	—	<b>44.3</b>	<b>32.1</b>	<b>17.2</b>	—

**Figure 11: Locations of Fire-Cracked Rock on West Locus of AgGt-105.**

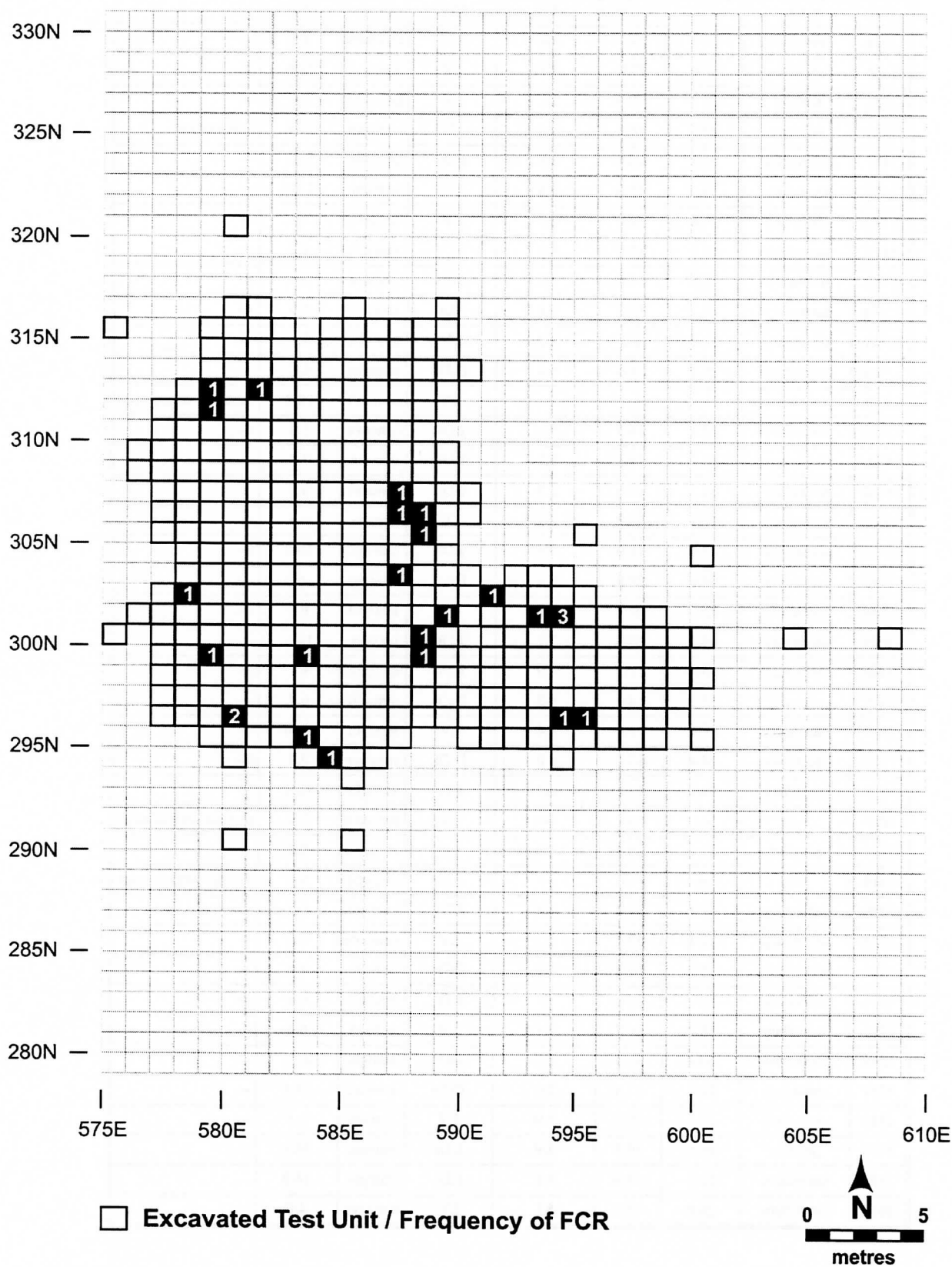


Table 16: Utilized Flakes from the West Locus (AgGT-105).

CAT. #	FLAKE TYPE	LENGTH (mm)	WIDTH (mm)	THICKNESS (mm)	UTILIZED EDGE*	SHAPE	LENGTH (mm)	REMARKS
1372	tertiary	30.5	16.9	4.5	DiV	convex	17.2	---
1036	secondary	30.5	17.7	4.6	LDr	concave	6.5	---
1338	secondary	31.6	17.0	3.9	LV	concave	18.0	---
1331	tertiary	15.3	11.8	2.1	LV	concave	6.9	---
1394	primary	23.5	16.9	6.4	LV	concave	10.6	heat-treated
1415	secondary	24.5	18.4	3.8	LDr	straight	11.4	---
1490	secondary	33.0	22.6	6.8	LDr	convex	17.0	---
1378	secondary	17.8	12.5	2.5	LV	concave	7.8	---
1479	secondary	20.7	16.0	3.0	LDr	straight	9.7	---
1738	secondary	35.5	14.6	5.0	DiDr	convex	16.4	---
1362a	secondary	27.2	19.3	5.1	LDr	straight	5.9	---
1362b	secondary	24.1	6.8	2.2	LV	straight	5.0	---
1385a	secondary	23.7	21.6	6.4	DiDr	straight	6.8	---
1385a	---	---	---	---	LV	concave	18.3	second worked edge
1385b	secondary	17.1	16.3	3.8	LDr	concave	5.8	---
1672a	secondary	23.7	19.5	3.7	LDr	convex	7.7	---
1672b	secondary	15.1	14.3	2.7	LDr	concave	6.5	---
1043a	secondary	20.1	20.8	5.9	LV	convex	6.4	---
1043b	secondary	29.6	18.0	4.6	LDr	convex	10.6	---
1308a	secondary	34.6	22.8	8.6	DiDr	straight	16.8	---
1308b	secondary	25.1	8.3	3.5	LV	straight	9.2	---
1658a	secondary	45.9	29.0	7.9	LDr	convex	12.1	---
1658b	secondary	38.0	17.3	4.9	LDr	straight	9.7	---
1345	primary	21.9	18.1	4.9	DiDr	straight	6.7	---
1511	secondary	16.0	11.6	3.4	LV	straight	14.0	---
1810	secondary	14.4	17.2	4.0	DiDr	concave	9.5	---
1817	secondary	25.2	11.0	3.1	LDr	straight	12.1	---
1817	---	---	---	---	LV	concave	7.9	second worked edge
1814	secondary	21.1	20.3	4.6	LV	concave	9.4	---
1814	---	---	---	---	LV	straight	9.6	second worked edge
1789	secondary	19.7	11.2	3.8	LDr	concave	8.7	---
1545	secondary	22.1	13.1	5.1	LV	concave	8.6	---
1501	secondary	25.8	17.8	5.9	DiDr	convex	4.6	---
1501	secondary	---	---	---	LDr	straight	6.2	---
1797	secondary	28.2	16.7	4.1	LV	convex	6.3	---
1539	secondary	30.4	32.8	5.0	DiV	straight	21.9	---
1537	secondary	29.2	27.4	7.0	DiDr	convex	14.6	---
1816	secondary	28.8	18.3	3.9	LV	convex	6.4	---
1790	primary	39.5	30.5	8.9	LDr	convex	16.9	---
1592	secondary	32.7	13.9	3.8	LDr	straight	14.3	---
1616	secondary	20.6	16.3	5.1	LV	concave	4.0	---



CAT. #	FLAKE TYPE	LENGTH (mm)	WIDTH (mm)	THICKNESS (mm)	UTILIZED EDGE*	SHAPE	LENGTH (mm)	REMARKS
1028	secondary	29.8	27.4	7.6	LV	straight	11.8	---
1536	secondary	21.1	21.1	4.2	LV	straight	8.9	---
1527	secondary	22.4	16.4	4.8	DiDr	straight	10.9	---
1559	secondary	33.4	17.3	4.0	LDr	straight	12.2	---
1619	secondary	38.1	27.3	7.9	LDr	convex	7.3	---
1517	secondary	24.3	16.7	3.2	LDr	concave	16.9	---
1509	secondary	17.5	15.3	3.4	LDr	straight	7.3	---
1365	secondary	24.7	18.6	3.7	LV	straight	8.8	---
1424	secondary	22.3	14.2	2.7	LDr	concave	10.4	---
1329	primary	27.9	37.6	9.4	DiV	straight	15.3	---
1467	secondary	25.2	13.6	3.5	LV	straight	8.7	---
1467	---	---	---	---	LV	concave	5.1	second worked edge
1319	secondary	13.9	14.2	4.3	LDr	convex	13.6	---
1709	secondary	39.2	30.4	8.4	LDr	straight	32.4	---
1276	secondary	29.1	22.4	7.4	LDr	straight	10.6	---
1486	secondary	25.4	24.6	4.8	LV	straight	8.6	---
1259	secondary	34.4	21.6	4.5	LV	concave	14.1	---
1296	secondary	34.2	21.9	6.3	LV	concave	7.5	---
1656	primary	25.2	12.2	5.6	LV	straight	8.8	---
1777	tertiary	14.6	14.5	4.3	LV	straight	14.3	---
1769	secondary	37.1	21.6	7.1	LV	straight	16.3	---
1769	---	---	---	---	LDr	concave	13.9	second worked edge
1466	secondary	23.3	22.0	3.7	LV	straight	3.9	---
1483	secondary	23.3	28.4	2.8	LV	concave	4.2	---
1335	secondary	22.8	17.1	3.4	LV	concave	6.9	---
1674	secondary	30.9	13.9	5.1	LDr	straight	11.7	---
1757	primary	43.6	16.2	9.6	LDr	concave	16.8	---
1408	secondary	28.8	25.7	3.3	ERDr	convex	8.7	---
1707	primary	22.9	11.5	6.6	LV	concave	9.9	---
1292	secondary	26.9	21.2	6.5	LDr	convex	10.1	---
1598a	secondary	28.2	15.2	3.8	DiDr	straight	14.1	---
1598a	---	---	---	---	LDr	concave	8.4	second worked edge
1598b	primary	43.1	21.1	8.4	LV	straight	19.9	---
1426	primary	29.7	17.8	6.1	LDr	straight	10.9	---
1341a	secondary	30.2	30.6	6.6	DiV	straight	22.4	---
1341b	secondary	37.5	26.1	4.6	LV	concave	8.2	---
1432	primary	27.0	15.5	7.3	LDr	concave	6.2	---
1834	secondary	26.0	14.5	4.7	LDr	straight	8.4	---
1397a	secondary	28.6	19.7	3.5	LV	straight	4.6	---
1397b	secondary	25.0	12.7	4.6	LDr	concave	8.7	---
1368a	secondary	28.9	20.8	3.6	LV	straight	9.8	---
1368b	primary	26.1	18.4	5.5	LDr	straight	11.1	---

CAT. #	FLAKE TYPE	LENGTH (mm)	WIDTH (mm)	THICKNESS (mm)	UTILIZED EDGE*	SHAPE	LENGTH (mm)	REMARKS
1389a	primary	14.7	20.8	5.5	DiV	convex	6.1	---
1389b	secondary	18.4	16.6	3.0	LDr	concave	7.0	---
1849a	primary	31.3	15.7	7.4	DiDr	convex	5.3	---
1849b	secondary	27.0	18.0	4.8	LV	concave	9.1	---
1840a	secondary	30.4	18.6	3.6	LDr	concave	7.1	---
1840b	secondary	26.5	17.9	3.6	LV	straight	9.0	---
1846	tertiary	18.9	16.6	3.9	LDr	concave	7.6	---
1843	secondary	22.1	15.4	5.0	LDr	concave	10.9	---
1853a	primary	32.0	12.7	7.8	DiDr	convex	8.3	---
1853b	secondary	25.3	20.4	5.6	LV	concave	11.1	Ancaster chert
1857	secondary	36.7	33.3	8.0	DiDr	convex	10.8	---
1878	secondary	27.2	22.2	6.9	DiV	convex	10.7	---
1860	secondary	20.3	16.5	3.4	LDr	concave	9.2	---
1872	secondary	22.9	12.1	3.3	LDr	straight	7.0	---
1838	secondary	31.8	19.9	5.8	LDr	concave	16.4	---
<b>Means</b>	---	<b>26.8</b>	<b>18.8</b>	<b>5.0</b>	---	---	<b>10.5</b>	---

\* Utilized edge location abbreviations: L = Lateral; Di = Distal; ER = Edge Rounding; Dr = Dorsal; V = Ventral

**Table 17: Chipping Detritus from the West Locus (AgGt-105).**

FLAKE TYPE	ONONDAGA	HALDIMAND	SELKIRK	UNIDENTIFIED	TOTALS
primary	18	6	0	0	24
secondary	141	30	0	0	171
tertiary	3642	1568	5	27	5,242
debris	2496	680	0	43	3,219
<b>Totals</b>	<b>6,297</b>	<b>2,284</b>	<b>5</b>	<b>70</b>	<b>8,656</b>

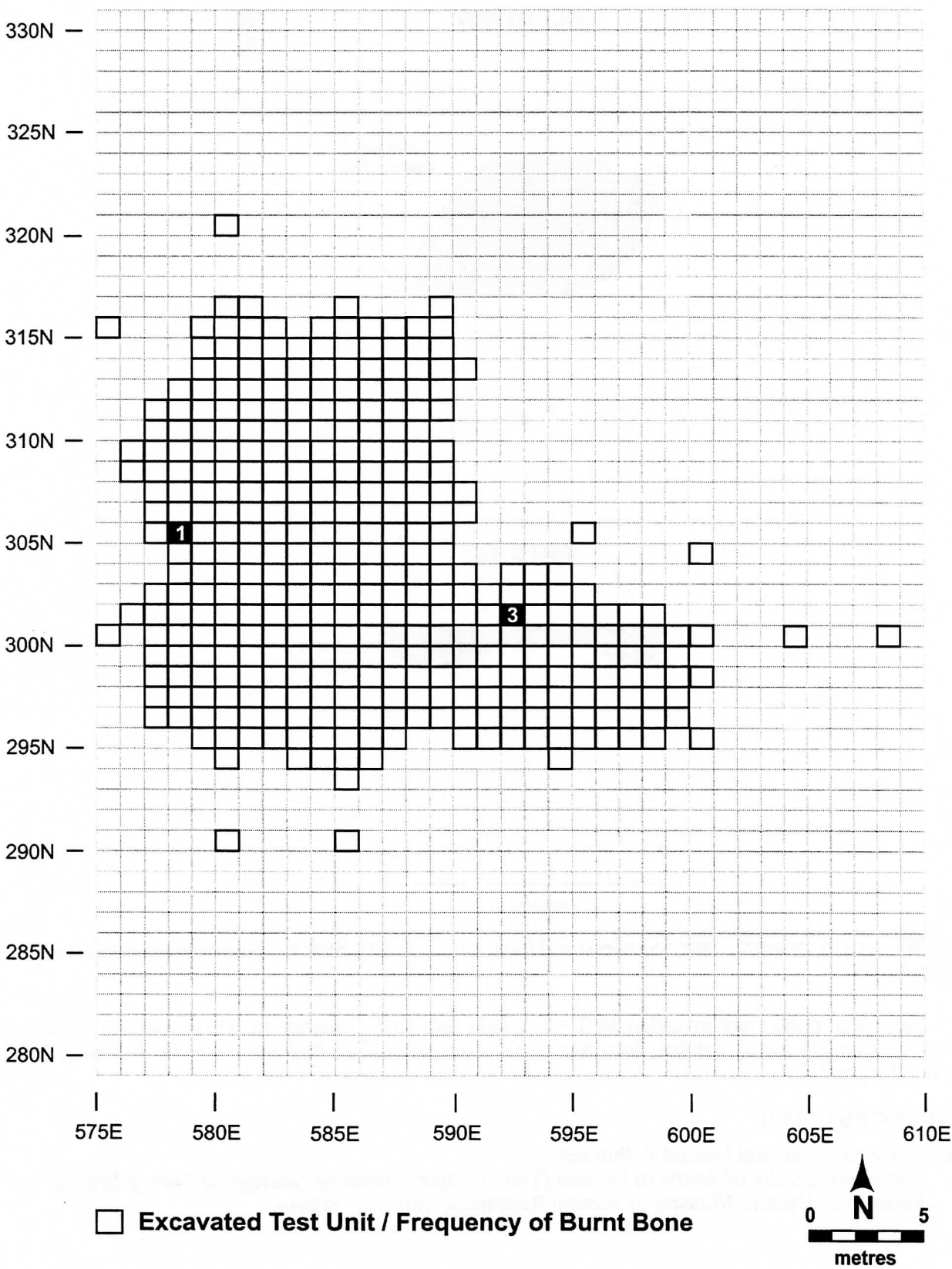
The inland location of the Masterson Heights sites suggests a winter occupation of the site (Lennox 1986; Muller 1989; but see Woodley 1990). Two oval clusters of artifacts on the Innes site were interpreted as house structures. However, the distribution of artifacts recovered from the topsoil from Masterson Heights is not similar. If variation in artifact densities do represent activity areas, there appear to be multiple areas on both loci of Masterson Heights. This suggests the yearly occupation of a preferred site, rather than a single occupational episode. The steep break-in-slope located just to the south of the site is an ideal habitat for variety of wild fruits.

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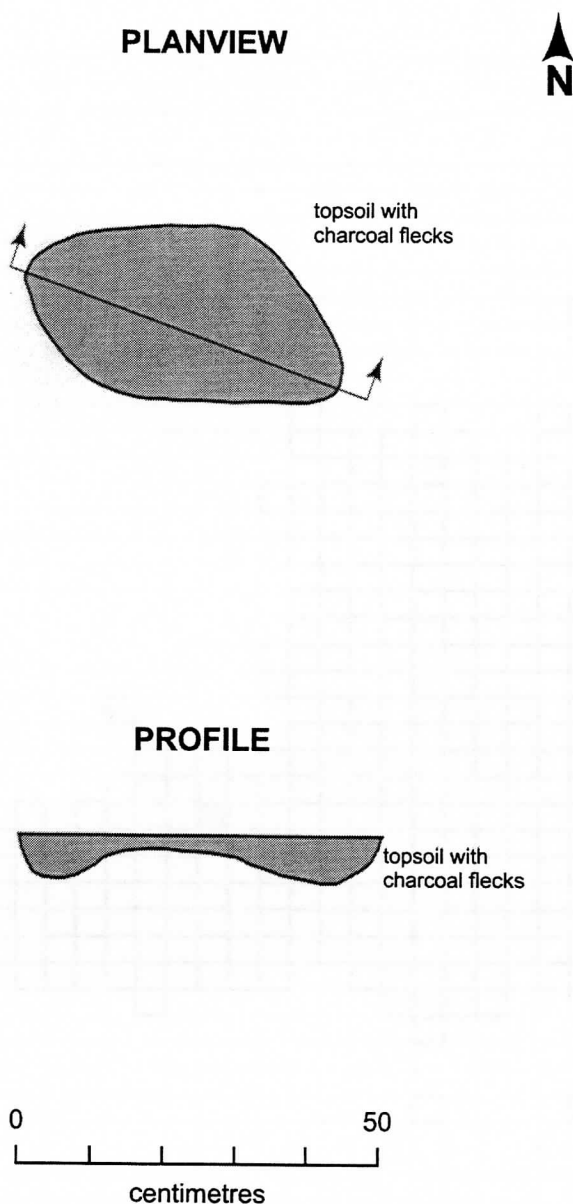
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**Figure 12: Locations of Burnt / Calcined Bone on West Locus of AgGt-105.**



**Figure 13: Planview and Profile of Feature #1 on West Locus of AgGt-105.**



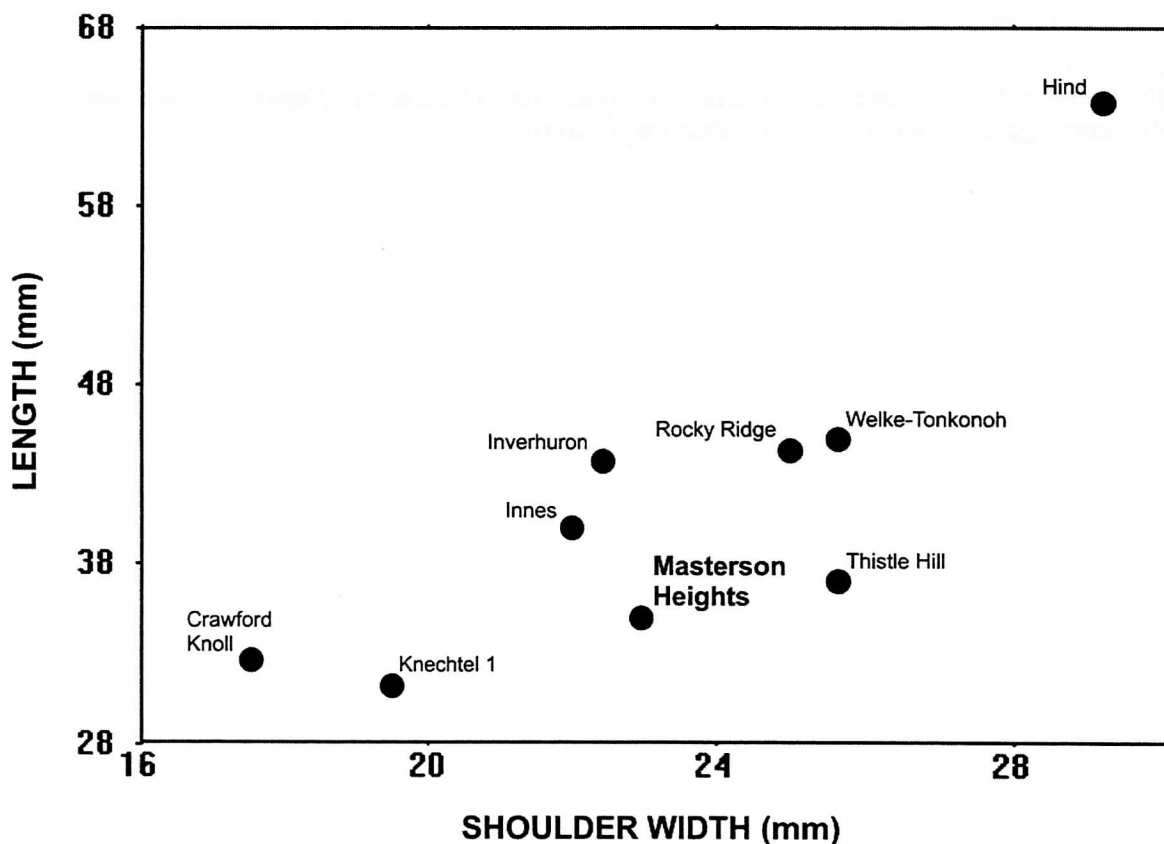
Retter, Winterson Rogers, Cathy Sanderson, Helen Sluis, Kristy Snarey, Adam Wisniewski and Jen Woods.

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#### REFERENCES CITED

- Chapman, Lyman John and Donald F. Putnam  
 1984 The Physiography of Southern Ontario (Third Edition). *Ontario Geological Survey Special Volume 2*. Ontario Ministry of Natural Resources, Toronto, Ontario.

**Figure 14: Scattergram of Projectile Point Dimensions from Late Archaic Sites (adapted from Kenyon 1989).**



Crabtree, Don E.

1982 An Introduction to Flint Working (second edition). *Occasional Papers of the Idaho Museum of Natural History* 28. Pocatello, Idaho.

Fecteau, Rodolphe D.

2001 A Report on the Charred Wood Remains from Feature 1 on the East Locus of the Masterson Heights 2 Site (AgGt-105), City of St. Catharines, R.M. of Niagara, Ontario. On file, Mayer Heritage Consultants Inc., London, Ontario

Kenyon, Ian

1989 "Terminal Archaic projectile points in southwestern Ontario: an exploratory study." *Kewa* 89(1):2-21.

Lennox, Paul

1986 "The Innes site: a plow-disturbed Archaic component, Brant County, Ontario." *Midcontinental Journal of Archaeology* 11(2):221-268.

Mayer Heritage Consultants Inc.

2000 Archaeological Assessment (Stages 1 to 3), Masterson Heights Subdivision (26T-10-00002), City of St. Catharines, R.M. of Niagara, Ontario. On file, Ontario Ministry of Culture, Toronto, Ontario.

2001 Archaeological Mitigative Excavation (Stage 4), Masterson Heights Subdivision (26T-10-00002), City of St. Catharines, R.M. of Niagara, Ontario. On file, Ontario Ministry of Culture, Toronto, Ontario.



Muller, Joseph P.

1989 A 'smallpoint' Archaic component at the Welke-Tonkonoh site, Ontario. *Kewa* 89(3):3-22.

von Bitter, Robert

2000 Background Research Site Report. Site database provided by the Ontario Ministry of Culture, Toronto, Ontario.

Woodley, Philip J.

1990 The Thistle Hill Site and Late Archaic Adaptations. *Occasional Papers in Northeastern Archaeology* 4. Copetown Press, Dundas, Ontario.